ACCURACY RELATIVE TO CALIBRATION STANDARDS ±(% Reading + % FS) |4| 23°C±5°C			CALIBRATION UNCERTAINTY ±ppm |3|	TEMPERATURE COEFFICIENT ±ppm Reading per °C 13°C-18°C 28°C-33°C	NOISE 1Hz LF filter and Hi Res selected. Peak over 1 Min. ±% Reading	INPUT IMPEDANCE
24 Hours	90 Days	1 Year				
0.025 + 0.007	0.030 + 0.007	0.040 + 0.007	100	15	0.001± 10 digits	1MΩ shunted by 150pF
0.015 + 0.005	0.020 + 0.005	0.025 + 0.005	50	15	0.001± 5 digits	
0.025 + 0.007	0.030 + 0.007	0.040 + 0.007	100	15	0.002± 5 digits	
0.060 + 0.012	0.090 + 0.012	0.110 + 0.012	100	25	0.001± 5 digits	
0.030 + 0.010	0.045 + 0.010	0.055 + 0.010	50	25	0.001± 5 digits	
0.060 + 0.012	0.090 + 0.012	0.110 + 0.012	100	25	0.002± 5 digits	
0.120 + 0.022	0.180 + 0.022	0.230 + 0.022	200	100	0.001± 5 digits	
0.080 + 0.020	0.090 + 0.020	0.140 + 0.020	100	100	0.001± 5 digits	
0.120 + 0.022	0.180 + 0.022	0.230 + 0.022	200	100	0.002± 5 digits	

Other Specifications

Type: True RMS AC-coupled measures AC component with up to 1000V DC bias on any range.
By pressing AC and DC keys, DC-coupled true RMS AC is measured, i.e. $\sqrt{AC^2 + DC^2}$.

Read Rate:	2 Readings per second.
Full Scale Count:	199,999(9) on all ranges except 1000V.
Crest Factor:	5:1 at Full Range.
Common Mode Rejection Ratio:	(1kΩ source unbalance).
DC-60Hz:	>90dB.
Settling Time in Local Operation	(to within 0.1% of step size).
100Hz:	<500ms.
10Hz:	<2.5s.
1Hz:	<15s.
0.1Hz:	<150s.
Input Protection:	Withstands 1000V RMS on any range.
Ratio Accuracy |5|:	±net signal accuracy±net reference accuracy.
Add to the main Accuracy Specifications for:	
DC signals:	0.01% Reading±0.0015% FS±10μV.
LF 0.1Hz:	As DC signals±0.05% FS.
LF 1Hz:	As DC signals±0.01% FS.
LF 10Hz:	As main Accuracy specification.
HF 100kHz-1MHz:	2% Reading±1% FS (1V and 10V ranges).

Resistance

Stability and Accuracy

RANGES	STABILITY [2] ±(ppm Reading + ppm FS) [4]		ACCURACY RELATIVE TO CALIBRATION STANDARDS ±(ppm Reading + ppm FS) [4] 23°C±1°C			ACCURACY RELATIVE TO CALIBRATION STANDARDS ±(ppm Reading + ppm FS) [4] 23°C±5°C		
	1 Minute	24 Hours	24 Hours	90 Days	1 Year	24 Hours	90 Days	1 Year
10.00000(0)Ω	0.5 + 50μΩ	2.5 + 2.5	4 + 3	7 + 3.0	12 + 3.0	10 + 3.0	15 + 3.5	20 + 4
100.0000(0)Ω	0.5 + 60μΩ	2.0 + 0.5	3 + 1	5 + 1.5	10 + 1.5	7 + 1.5	10 + 1.5	15 + 2
1.000000(0)kΩ	0.5 + 600μΩ	2.0 + 0.5	3 + 1	5 + 1.5	10 + 1.5	7 + 1.5	10 + 1.5	15 + 2
10.00000(0)kΩ	0.5 + 6mΩ	2.0 + 0.5	3 + 1	5 + 1.5	10 + 1.5	7 + 1.5	10 + 1.5	15 + 2
100.0000(0)lΩ	0.5 + 60mΩ	2.5 + 0.5	4 + 1	6 + 1.5	11 + 1.5	8 + 1.5	10 + 1.5	15 + 2
1000.000(0)kΩ	1.0 + 500mΩ	4.0 + 0.5	7 + 1	15 + 1.5	25 + 1.5	15 + 1.5	25 + 1.5	35 + 2
10,00000(0)MΩ	5.0 + 5Ω	6.0 + 0.5	10 + 1	30 + 1.5	50 + 1.5	20 + 1.5	40 + 1.5	60 + 2

NOTES:

[ ] – Hi Res selected gives 7½ digits on DCV and Resistance; 6½ digits on ACV.
[1] – Signals <2 × 10^7 Volt-Hertz>1% FS: DC coupled below 100Hz.
[2] – For same conditions with Hi Res selected between 18°C and 28°C.
[3] – Datron Instruments traceability to National Standards.
[4] – FS = 2 × Full Range.
[5] – At same amplitude, frequency etc., errors tend to zero.
[6] – Add 0.01% per 100V above 500V.
[7] – At Full Range ±2%.

CALIBRATION UNCERTAINTY ±ppm |3|	TEMPERATURE COEFFICIENT ±ppm Reading per °C 13°C-18°C 28°C-33°C	NOISE Filter (Hi-Res) selected, and after 'Zero' Peak over 1 min. ±ppm Reading	MEASUREMENT CONSTANT-CURRENT VALUE (I+ to I−)
5	1.5	0.25 + 30μΩ	10mA
5	1.0	0.25 + 50μΩ	10mA (1mA-PRT)
5	1.0	0.25 + 500μΩ	1mA
5	1.0	0.25 + 5mΩ	100μA
10	1.0	0.25 + 50mΩ	10μA
15	2.0	0.50 + 500mΩ	5μA
20	2.5	0.50 + 5Ω	500nA

Other Specifications

Type: True 4-wire can be switched to 2-wire from Front Panel.
Active Guard allows in-circuit measurements (Refer to pages 2-7).

Read Rate:	2 Readings per second.
Full Scale Count:	1,999,999(9) on all ranges.
Settling Time:	Up to 10kΩ range; generally the same as DCV but depends on external capacitances and guarding/shielding techniques employed.
Open-circuit Voltage:	<20V all ranges.
Lead Resistance:	Up to 100Ω.
Input Protection:	Withstands 250V RMS on any range.
Ratio Accuracy |5|:	±net signal accuracy±net reference accuracy.

Temperature

Probe immersion using PRT 100 accessory: 100mm

RANGE °C display (5 ½ digits)	ABSOLUTE ACCURACY (± °C)			CALIBRATION UNCERTAINTY Included in 90 day and 1 year accuracy specifications (± °C)
	23°C±1°C 24 Hours	23°C±°C 90 Days	23°C±5°C 1 Year	
− 100 to − 55	0.20	0.25	0.30	0.002 at 0°C 0.01 at 100°C
− 55 to 0	0.04	0.10	0.15	
0 to + 100	0.02	0.06	0.10	
+ 100 to + 200	0.04	0.10	0.15	
At 0°C & + 100°C	0.01	0.05	0.08	

Ω display (6 ½ /7 ½ digits)	ACCURACY RELATIVE TO CALIBRATION STANDARDS ±(ppm reading + ppm FS)		
100Ω(1mA)	3 + 3	10 + 3.5	15 + 4

Ratio

Normal Ratio Input Conditions: any input on any range

Accuracy:

$$\pm E_R \pm E_S \pm X. \left(\left| \frac{\text{Ref. range}}{\text{Ref. reading}} \right| + \left| \frac{\text{Sig range}}{\text{Sig reading}} \right| \right)$$

Where E_R = Net error of reference

E_S = Net error of signal

settling factor X = 0.000 002 (DCV, kΩ)

= 0.000 02 (ACV)

Time per reading (Full Scale input, Hi Res deselected):

FUNCTION	FILTER out	FILTER in
DCV: 100mV 1V-1kV	5.6 s 3.4 s	47.5 s 47.5 s
ACV	4.6 s	12 s (10Hz), 58 s (1Hz), 600 s (0.1Hz)
kΩ: 10Ω 100Ω-100kΩ 1MΩ 10MΩ	5.6 s 3.4 s 3.4 s 3.9 s	47.5 s 47.5 s 48 s 50 s

Transfer

Transfer Input Conditions: same Function, Range & Polarity,
Signal and Reference input amplitude both within ±2% of Full Range,
'Hi Res' selected and after 'Zero' on both inputs,
same Signal & Reference frequency on ACV (except ACV/DCV)

Accuracy:
DCV/DCV: as DC Voltage, Stability, 24 hr specification
ACV/ACV: as AC Voltage, Transfer Stability, 24 hr specification
ACV/DCV: shown on AC Voltage, Transfer Accuracy table
kΩ/kΩ: as Resistance, Stability, 24 hr specification

Time per reading (Full Scale input, Hi Res selected: as Ratio specification

Standard internal delays

Between the receipt of any trigger pulse and the commencement of a measurement cycle, an internal time delay is introduced.

This permits the application of the signal to the input terminals to be coincident with the trigger and ensures that the input circuitry has settled before the commencement of the reading cycle.

The standard internal delays differ for each range and function in order to ensure maximum read-rate and adequate settling. The delays are shown in the following table:

		FILTER (ms)			
		OUT	IN		
Function	Range	100Hz	10Hz	1Hz	0.1Hz
DCV	all	50		1000	
ACV DC + ACV	all	1s	4s	20s	200s
kΩ	10Ω-100kΩ 1MΩ 10MΩ	50 50 310		1000 1200 2500	

Additional to all the delays shown above is 25ms when changing range between the 10V and 100V ranges and 100ms before the first reading following a function change.

'Spec' Readout Validity

DC Voltage & Resistance — valid for all ranges
AC Voltage — valid for all inputs except: – DC coupled signals <10Hz
– HF signals >100kHz

Temperature — no readout for °C display
valid for Ω display

Ratio — for normal Ratio, readout is $\pm E_R \pm E_S$
for Transfer, readout $\pm E_R$ for 24 hr accuracy
where E_R = Net error of reference
E_S = Net error of signal

SECTION 7 SPECIFICATION VERIFICATION

Introduction

This section contains procedures which check that the instrument is working within its specified traceable accuracy. In addition, functions of the COMPUTE and KEYBOARD facilities can be checked by following the examples in Section 3.

To record the readings obtained, a Specification Verification Report Sheet is included at the end of the section. This can form a permanent record, and may be used to check the instrument on receipt from Datron, or for a periodic performance test. The sheet may be used as a master to generate duplicate copies for future use.

1081 Specifications

The specifications appearing in Section 6 are deliberately arranged to take separate account of each contributing uncertainty. In particular, Datron's calibration uncertainty figures are not included in any of the other specifications, but are given in a separate table. This means that the stability and accuracy specifications describe the true performance of the instrument alone, in a form which can be made traceable to National Standards merely by adding in the uncertainty of the reference standard against which it is checked or calibrated.

Thus the 24-Hour, 90-day or 1-year accuracy specifications are verifiable by comparison with traceable Reference Standards.

The 1-min and 24-hour stability specifications can only be verified following a calibration operation or calibration check, under the same conditions, against the user's Reference Standards.

Use of 'Spec' Mode

The verification procedures in this section are written to take advantage of the 'Spec' mode facilities built into the instrument, because many users will wish to verify the 1081 at values other than Cardinal points (e.g. at standard-cell derived values). Also, in view of the need to include both the factory AND/OR user's uncertainties in the verification tolerances, a fixed table of limits would be inappropriate. Instead of limit tables, the Report Sheet at the end of this Section includes columns for recording the 'Spec' mode readout, the factory and user's uncertainties, the calculated limits, and the measured values.

Stored Specifications

Three specifications are stored within each instrument's non-volatile memory. They are accessible to users by selecting 'Spec' mode (Refer to Section 3), and are selectable by the CALIBRATION INTERVAL switch on the rear panel. The displayed figures are compiled from the Section 6 tables as follows:

a. 24hr CALIBRATION INTERVAL
 23°C±1°C, 24 Hours Relative Accuracy figure.

b. 90dy CALIBRATION INTERVAL
 23°C±5°C, 90 Days Relative Accuracy figure, plus Datron's Calibration Uncertainty.

c. 1yr CALIBRATION INTERVAL
 23°C±5°C, 1 Year Relative Accuracy figure, plus Datron's Calibration Uncertainty.

Spec mode therefore provides 90 day and 1 year accuracy figures which are traceable through Datron standards to National Standards, for users who have no calibration or verification facilities of their own.

N.B. The figures do not include temperature-coefficient corrections for ambient temperatures outside the specified range. These should be taken into account if appropriate.

Non-Verification

If an instrument is found to be out of specification, refer to the Routine Autocalibration in the Calibration and Servicing Handbook, or contact your nearest Datron Servicing Center.

Equipment Requirements

The following equipment, or equipment of suitable traceable accuracy over the range of values given, is required to verify the traceable accuracy of the 1081.

DC voltage (±10mV – ±1000V)
 – Datron 4000 or 4000A Autocal Standard.

AC Voltage (100mV – 500V: 200Hz, 3kHz, and 30kHz)
 – Datron 4200, or Fluke 5200 and 5215.

Resistance (4-wire: 10Ω, 100Ω, 1kΩ, 10kΩ; and 2 or 4-wire: 100kΩ, 1MΩ, 10MΩ.)
 – Datron 4000 or 4000A Autocal Standard.

Verification upon receipt of a 1081 Standards Multimeter

Each instrument is factory-calibrated and verified by Quality Control to a higher traceable accuracy than its published specification. The limits of this accuracy are the calibration uncertainties which appear in the specification tables of Section 6.

Similarly, users cannot ever verify the instrument's traceable accuracy to closer limits than their own calibration uncertainties.

If an instrument were correctly calibrated against the factory standard at its uncertainty limit, and then verified against a user's standard, also at its limit; there are two extremes to the range of traceable results which could be obtained. If, for example, both standards' traceable errors were equal and in the same sense, the instrument would appear to verify as absolutely accurate. But if the errors were in opposite sense, it would appear to be inaccurate by the sum of the two limits of uncertainty.

In the following numerical example, a 1081 is verified in the factory at +10V on the 10V DC Range, with 0ppm error, against a 3ppm-high standard. It remains correctly calibrated, and could be delivered to one of two users: one user's standard is 3ppm higher than the National Standard, and the other's is 3ppm lower.

The first user would verify the 1081 as having 0ppm error, but the second would obtain an error of +6ppm; when in fact the instrument had sustained its original accuracy of +3ppm, and all three standards were only 3ppm away from National Standards.

Therefore, on receipt of an instrument, its traceable accuracy specification cannot be verified exactly as may be assumed by reading the Section 6 accuracy tables only. An EXTRA tolerance must be added, equal to the factory calibration uncertainty (This appears in a separate column in Section 6 tables) PLUS the user's calibration uncertainty (Which the user will know). No closer verification tolerance can justifiably be imposed; so unless the instrument fails to verify within the extended figures, there is no confidence that it is outside its specification.

This increased uncertainty is unavoidable unless the same standard is used for each verification. This is clearly not a practical proposition following delivery. But after the first autocalibration against the user's standard, the factory uncertainty is eliminated.

Verification following User-calibration

Once an instrument has been Autocalibrated by a user, it discards the factory calibration uncertainty mentioned in the previous column. Its traceable accuracy can therefore be verified against the same standard used for calibration to a closer tolerance than it could on receipt, within the limits of that standard's calibration uncertainty.

In this case it is only necessary to add the USER'S calibration uncertainty to the figures in the accuracy tables of Section 6. Failure to verify within these reduced (but still extended) figures, gives confidence that it is outside its traceable accuracy specification.

Limit Calculations

a. On Receipt from Datron

Select the appropriate CALIBRATION INTERVAL and Input the value (V) at which the 1081 is to be verified. Obtain the calibration uncertainty of the standard to be used to verify the 1081, at this value.

Add the standard's uncertainty (Us ppm) to the 1081 'Spec' mode 90-day readout (Ur ppm) at this value.

Let the total be Ut (ppm):

$$Ut = Ur + Us \text{ (ppm)}.$$

Calculate the limits from:

$$\text{Positive Limit } (+\text{Lim}) = V + \frac{(V \times Ut)}{10^6}$$

$$\text{Negative Limit } (-\text{Lim}) = V - \frac{(V \times Ut)}{10^6}$$

b. Following User-calibration

Select the appropriate CALIBRATION INTERVAL and Input the value (V) at which the 1081 is to be verified. Obtain the calibration uncertainty of the standard to be used to verify the 1081, at this value.

Add the standard's uncertainty (Us ppm) to the 1081 'Spec' mode display readout (Ur ppm), then subtract Datron's calibration uncertainty (Ud ppm) at this value. Let the total be Ut (ppm):

$$Ut = Ur + Us - Ud \text{ (ppm)}$$

Calculate the limits from:

$$\text{Positive Limit } (+\text{Lim}) = V + \frac{(V \times Ut)}{10^6}$$

$$\text{Negative Limit } (-\text{Lim}) = V - \frac{(V \times Ut)}{10^6}$$

Verification Procedures

DC Performance

(Use Tables 1a and 1b of the Report Sheet)

1. Turn on the instrument to be checked and allow a minimum of 2 hours to warm up in the specified environment.
2. Ensure that all 'MODE' and 'COMPUTE' LEDs are unlit, set the Local/Remote Guard switch to 'Local Guard', and check that 'cal' is not displayed.
3. Select 'Test' and check that the instrument passes its Self Test criteria (See Section 3).
4. Connect the DC voltage source, with its output turned down to zero, between 'Hi' and 'Lo'. Allow the input to stabilize.

N.B. Operation 5 must also be carried out every time the Voltage Source range is changed.

5. Select 'DC', 'Auto', 'Filter' and 'Zero'. The instrument will carry out its Auto-zero routine, turning off the 'Zero' LED when complete.

NOTE: In operation 6; when checking the 0.1V and 1V Ranges, it will be necessary to turn the DC source down to zero and allow the thermal EMFs to disappear or stabilize (several minutes). Select range then 'Zero', to remove any offset. The signal may then be applied.

This procedure should be repeated if changing polarity involves reversal of leads, as the thermal EMFs may have changed.

6. Select each range in turn as listed on Table 1a of the Report Sheet. Apply the corresponding Full Range input value between 'Hi' and 'Lo'. Calculate the tolerance limits using 'Spec' mode for the value as described on page 7-2 (a or b), recording them on the table. Record the displayed reading and check that it is between the calculated limits.
7. Select the 10V Range. Apply the input values in turn between 'Hi' and 'Lo', as listed in Table 1b of the Report Sheet. Calculate the tolerance limits using 'Spec' mode for each value as described on page 7-2 (a or b), recording them on the table. Record the displayed reading and check that it is between the calculated limits.

AC Performance

(Use Tables 2a and 2b of the Report Sheet)

1. Carry out DC Performance checks 1 to 3 if the DC Performance has not been verified.
2. Select each range in turn as listed on Table 2a of the Report Sheet. Apply the corresponding Full Range input value, at the specified frequency, between 'Hi' and 'Lo'. Calculate the tolerance limits using 'Spec' mode for the value as described on page 7-2 (a or b), recording them on the table. Record the displayed reading and check that it is between the calculated limits.
7. Select the 10V Range. Apply the 200Hz input values in turn between 'Hi' and 'Lo', as listed in Table 2b of the Report Sheet. Calculate the tolerance limits using 'Spec' mode for each value as described on page 7-2 (a or b), recording them on the table. Record the displayed reading and check that it is between the calculated limits.

Resistance Performance

(Use Table 3 of the Report Sheet)

1. Carry out DC Performance checks 1 to 3 if the DC Performance has not been verified.
2. Connect a True 4-wire Zero as detailed in Section 2 'Resistance Measurement'. Select 'kΩ', 'Filter' and 'Zero'.

NOTE: For operation 3, True 4-wire connection is recommended throughout; but a 2-wire arrangement can be used for 1MΩ and above, in which case '2-wireΩ' should be selected. If high value standards are fitted with a 'Guard' terminal, this should be connected to 'Ω Guard'.

3. Select each range in turn as listed on Table 3 of the Report Sheet. On each range; carry out operation 2, then use the 1081 to measure the value of the corresponding standard Full Range resistor. Calculate the tolerance limits for the value using 'Spec' mode as described on page 7-2 (a or b), recording them on the table. Record the displayed reading and check that it is between the calculated limits.

Verification Report

Notes on the Use of the Report Sheet

1. **Tables**

2. **Duplicate copies**
To generate copies of the Report Sheet for future use, it is recommended that pages 7-5 to 7-6 be used only as masters for duplication.

3. **'Zero' operation**
The comparison between a DC Voltage or Resistance reading and its Calculated Tolerance Limits is valid only if the reading follows a 'Zero' operation.

4. **To Calculate Verification Tolerances on receipt from Datron:**
Set the CALIBRATION INTERVAL switch at the rear of the 1081 to 90dy, and input the desired value (V) from a Calibration Standard. Select 'Spec' Mode and add the 90-day readout (Ur ppm) to the Standard's uncertainty (Us ppm) at this value. Let the total be Ut (ppm):

$$\mathbf{Ut = Ur + Us\ (ppm)}$$

(Convert % to ppm by: U (ppm) = $10^4 \times$ U (%))

Calculate the limits from:

$$\text{Negative Limit } (-\text{Lim}) = V - \frac{(V \times Ut)}{10^6}$$

$$\text{Positive Limit } (+\text{Lim}) = V + \frac{(V \times Ut)}{10^6}$$

5. **To Calculate Verification Tolerances after User-calibration:**
Set the switch at the rear of the 1081 to the appropriate CALIBRATION INTERVAL, and input the desired value (V) from a Calibration Standard. Select 'Spec' Mode and add the 1081 readout (Ur ppm) to the Standard's uncertainty (Us ppm) at this value, then subtract Datron's calibration uncertainty (Ud ppm – refer to the tables). Let the total be Ut (ppm):

$$\mathbf{Ut = Ur + Us - Ud\ (ppm)}$$

(Convert % to ppm by: U (ppm) = $10^4 \times$ U (%))

Calculate the limits from:

$$\text{Negative Limit } (-\text{Lim}) = V - \frac{(V \times Ut)}{10^6}$$

$$\text{Positive Limit } (+\text{Lim}) = V + \frac{(V \times Ut)}{10^6}$$

Specification Verification Report Sheet

Datron Model .... Serial Number .... Calibration Interval .... Stability/Accuracy

Date .... Checked by .... Company/Dept ....

1. DC Voltage

a) Full Range Checks following a 'Zero' operation on all ranges

Polarity /Range	DC Source Voltage	Spec Mode Readout (±Ur ppm)	Datron Uncert'y (±Ud ppm)	Cal. Std. Uncert'y (±Us ppm)	Calculated Tolerance Limits – Lim	+ Lim	READING
+ 100mV			5				
– 100mV			5				
+ 1V			3				
– 1V			3				
+ 10V			3				
– 10V			3				
+ 100V			5				
– 100V			5				
+ 1000V			5				
– 1000V			5				

b) 10V Range Linearity following a 'Zero' operation.

Polarity /Nominal Value	DC Source Voltage	Spec Mode Readout (±Ur ppm)	Datron Uncert'y (±Ud ppm)	Cal. Std. Uncert'y (±Us ppm)	Calculated Tolerance Limits – Lim	+ Lim	READING
+ 10mV			3				
– 10mV			3				
+ 100mV			3				
– 100mV			3				
+ 1V			3				
– 1V			3				
+ 10V			3				
– 10V			3				
+ 19V			3				
– 19V			3				

2. AC Voltage

a) Full Range Checks

Range	AC Source Voltage	Frequency	Spec Mode Readout (± Ur ppm)	Datron Uncert'y (± Ud ppm)	Cal. Std. Uncert'y (± Us ppm)	Calculated Tolerance Limits – Lim	+ Lim	READING
100mv		200Hz		100				
		3kHz		100				
		30kHz		200				
1V		200Hz		50				
		3kHz		50				
		30kHz		100				
10V		200Hz		50				
		3kHz		50				
		30kHz		100				
100V		200Hz		50				
		3kHz		50				
		30kHz		100				
1000V	500.00V	200Hz		100				
	500.00V	3kHz		100				
	500.00V	30kHz		200				

b) 10V Range Linearity at 200Hz

Nominal Value	AC Source Voltage	Spec Mode Readout (± Ur ppm)	Datron Uncert'y (± Ud ppm)	Cal. Std. Uncert'y (± Us ppm)	Calculated Tolerance Limits – Lim	+ Lim	READING
10mv			50				
100mV			50				
1V			50				
10V			50				
19V			50				

3. Resistance

Following a 'Zero' operation on all ranges.

Range	Sense 4 wire or 2 wire	Calibration Value	Spec Mode Readout (± Ur ppm)	Datron Uncert'y (± Ud ppm)	Cal. Std. Uncert'y (± Us ppm)	Calculated Tolerance Limits – Lim	+ Lim	READING
100MΩ	2 or 4			20				
1000kΩ	2 or 4			15				
100kΩ	2 or 4			10				
10kΩ	4			5				
1kΩ	4			5				
0.1kΩ	4			5				
10Ω	4			5				

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SWITZERLAND **Kontron Electronic AG** Bernerstrasse-Süd 169, 8048 Zurich	1 435 4111	822196 + KOEL CH	1 432 2464
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